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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,065	07/25/2001	David Kuo	50103-368	3370

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EXAMINER
CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/912,065	KUO ET AL.	
	Examiner	Art Unit	
	Daborah Chacko-Davis	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *15-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 1-14) in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the search of the subject matter of Group I (claims 1-14) would likely uncover pertinent art regarding Group II (claims 15-18). This is not found persuasive because the product (Group II) can be made by another method such as selective deposition of different coercivity materials.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 8-11, and 13-14, are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,383,574 (Han et al) in view of DD 271191 (Andra et al).

Han, in col 1, lines 6-12, in col 3, lines 3-29, in col 4, lines 20-41, in col 8, lines 1-49, in col 12, lines 12-28, discloses that a masked magnetic layer (employed in magnetic storage disks that are concentric) is exposed to ion implantation in the unmasked areas (plurality of sectors that are radially extending) at an implantation energy of about 100 KeV to change the magnetic properties of the magnetic layer

selectively (at implanted portions) without changing the uniformity of the magnetic layer followed by magnetization of the magnetic domains in the magnetic layer in a the direction of the field and then switching the field (perpendicularly applied magnetic bias field) to align the domains of the ion-implanted portions and to realign the domains of the non-implanted portions (claims 1, 4, 6, 9, and 14). Han, in col 9, lines 1-30, discloses that the ions were implanted at a dose of about 10^{16} ions/cm^2 (claim 2). Han, in col 9, lines 15-30, discloses that the ions implanted have an atomic weight of greater than about 35 a.m.u. (claim 8). Han, in col 8, lines 1-22, discloses that the masked magnetic layer if formed by photolithographically forming a liftoff stencil layer of a patterned photoresist layer formed by conventional methods (claim 10). Han, in col 10, lines 12-34, and in col 13, lines 41-45, discloses that the exposed photoresist mask is stripped after exposure to ion implantation, and that the ion-implanted magnetic layer is covered by a lead layer (protective) (claim 11). Han, in col 5, lines 30-45, discloses that an underlayer (non-magnetic conductor spacer layer) is formed on the substrate followed by the deposition of the magnetic layer (MR layer, reference 18 of figure 1) (claim 13).

The difference between the claims and Han is that Han does not disclose that the change in magnetic property created in the unmasked portions forms low coercivity regions capable of functioning as servo marks that can be sensed by read/write heads. Han does not disclose that the coercivity of the exposed (implanted portion) region changes from about 500 Oe to about 15000 Oe (claims 3, and 5).

Andra et al, in the abstract, discloses that the implanted portions of the magnetic layer result in low coercivity (higher field strengths, Hc) regions and result in the formation of servo-tracks that are tracked by disk-reading heads. Andra, in the abstract, discloses that the selective ion implantation results in an increase in the coercivity by at least 30%.

Therefore, it would be obvious to a skilled artisan to modify the method of Han by employing the method of Andra by magnetizing the implanted to form servo tracks as suggested by Andra because Andra, in the abstract, discloses that the implanted portions results in high coercivity field strengths, that are later magnetized to form tracking devices in magnetic read heads and Han, in col 11, lines 19, and lines 38-57, and in col 12, lines 5-10, discloses that the ion-implanted mask magnetic layer is magnetized to form sensor elements of better defined trackwidth, and Han in col 11, lines 1-8, discloses that the ion implantation process performed on the magnetic layer results in a magnetic layer with varying portions of magnetic coercivities.

4. Claim 7, is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,383,574 (Han et al) in view of DD 271191 (Andra et al) as applied to claims 1-6, 8-11, and 13-14, above, and further in view of U. S. Patent No. 5,232,566 (Edmonson et al).

Han in view of Andra is discussed in paragraph no. 2.

The difference between Han in view of Andra is that Han in view of Andra does

not disclose that the masked magnetic layer is exposed to argon ions to change the coercivity of the exposed region of the magnetic layer (claim 7).

Edmonson, in col 5, lines 30-45, discloses the dopant gas is accompanied by argon gas.

Therefore, it would be obvious to a skilled artisan to modify Han in view of Andra by employing the method of using argon gas with a dopant gas as taught by Edmonson because Edmonson, in col 8, lines 62-66, and in col 9, lines 1-3, discloses that the argon/dopant gas ratio can be varied to control the magnetic properties (including coercivity) of the magnetic recording film produced.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,383,574 (Han et al) in view of DD 271191 (Andra et al) as applied to claims 1-6, 8-11, and 13-14 above, and further in view of U. S. Patent Application Publication No. 2001/0033453 (Belser et al).

Han in view of Andra is discussed in paragraph no.2.

The difference between the claims and Han in view of Andra is that Han in view of Andra does not disclose that the photoresist coated magnetic layer is patterned using a stamper to form the selectively masked magnetic layer.

Belser, in [0040], discloses that a stamper is imprinted onto the photoresist coated magnetic layer (recording layer) to form a patterned resist layer on the recording layer.

Therefore, it would be obvious to a skilled artisan to modify Han in view of Andra by employing the method of using a stamper to form the masked magnetic layer (recording layer) as taught by Belser, because Belser, in [0039], discloses that the using the stamper enables the photoresist layer to reproduce the format pattern of the stamper accurately.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (703) 306-5923. If the examiner is unavailable, you may contact her supervisor, Mark F. Huff at (703) 308-2464. FAX communications should be sent to the appropriate FAX number; (703) 872-9311 for After Final Responses only or (703) 872-9310 for all other responses. FAXES received after 4:00 P.M. will not be processed until the following business day.

dcd
June 4, 2003.

MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700